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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/986,282	11/08/2001	Yoshiaki Uematsu	215379US3	5046

22850 7590 07/31/2002

OBLON SPIVAK MCCLELLAND MAIER & NEUSTADT PC
FOURTH FLOOR
1755 JEFFERSON DAVIS HIGHWAY
ARLINGTON, VA 22202

EXAMINER

PATEL, ISHWARBHAI B

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 07/31/2002

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/986,282

Applicant(s)

UEMATSU ET AL.

Examiner

Ishwar (I. B.) Patel

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on April 3, 2002, paper No. 8.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 5-7, 10-13 and 16-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 8, 9, 14, 15, 19 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I, claims 1-9 and 14-19, in Paper No. 8 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Also acknowledged is the election of specie I, claims 1-4,8-9, 14-15 and 19-20.

Claim 10, a method claim, belongs to group II, which is not elected, hence removed from further consideration.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 1-3,8-9, and 19-20 are rejected under 35 U.S.C. 102(a) as being anticipated by Takahiro, Japanese Patent No. JP02001053397A, hereafter Takahiro.

Regarding claim 1, Takahiro discloses a wiring board comprising:
a base board (insulating board);

a first hole, formed through the base board, including an insulating portion filled with an insulator (through hole 24 with insulating portion 26a, see figure 1 and 2a-d);
and

a pair of second holes formed within the first hole through the insulating portion (via through hole 27-28, see figure 1 and 2a-d).

Regarding claim 2, Takahiro further discloses a conducting portion for transmitting a differential signal in each of the second holes, see figure 2b..

Regarding claim 3, Takahiro further discloses the pair of second holes located symmetrically each other with respect to a center axis of the first hole for forming coaxial structures, see figure 2a-b.

Regarding claim 8 and 20, Takahiro further discloses two conductor layers coated with the conducting material (conductor layer on top and bottom of the board, see figure 1 and 2a-d).

Regarding claim 9 and 19, Takahiro further discloses the first hole through two conductor layers, see figure 4b-4c), wherein

the pair of the second holes formed by forming insulating layers on an upper surface and a lower surface of the two conductor layers, forming a plurality of wiring

patterns on an upper surface and a lower surface of the insulating layer, and forming holes through at least four layers of the two conductor layers and two insulating layer (see figure 4a-d).

Claim Rejections - 35 USC § 103

4. Claims 4,14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahiro, Japanese Patent No. JP02001053397A, hereafter Takahiro as applied to claim 1 above.

Regarding claim 4,14 and 15, the applicant is claiming the shortest length of the insulator filled between the pair of the second hole is shorter than a shortest length of the insulator filled between the first hole and one of the second holes. Though, Takahiro does not disclose such relation, the distance is adjusted to control the impedance and can be adjusted to any desired value. Therefore, it would have been obvious to one having ordinary skill in the art to provide the circuit board of Takahiro with the shortest length of the insulator filled between the pair of the second hole is shorter than a shortest length of the insulator filled between the first hole and one of the second hole as claimed in claim 4,14 and 15, in order to control the impedance and resultant noise. Further, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fasano et al., Endoh et al., Suppelsa et al., Toshiyuki disclose circuit board similar to applicant's claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwar (I. B.) Patel whose telephone number is (703) 305 2617. The examiner can normally be reached on M-F (6:30 - 4) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L Talbott can be reached on (703) 305 9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305 3431 for regular communications and (703) 305 7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956.

ibp
July 25, 2002


KAMAND CUNEO
PRIMARY EXAMINER